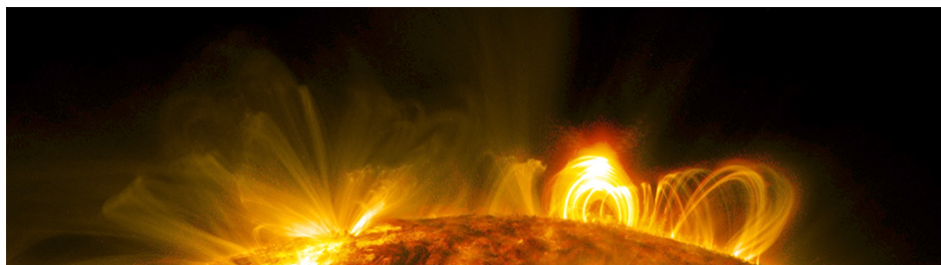


Particle Acceleration in Solar Flares and the Plasma Universe – Deciphering its features under magnetic reconnection



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Particle Acceleration in high-beta ICM Shocks

Tuesday, 16 November 2021 08:00 (30 minutes)

Weak shocks are induced by mergers and/or supersonic flow motions in the hot tenuous intracluster medium (ICM) of galaxy clusters. Cosmic ray (CR) protons are expected to be accelerated at quasi-parallel shocks via diffusive shock acceleration (DSA), whereas CR electrons are expected to be accelerated preferentially at quasi-perpendicular shocks. Reflection of incoming particles, and ensuing self-excitation of plasma waves via microinstabilities, and scattering of backstreaming particles back to the shock by those upstream waves play important roles in particle injection to DSA. Pre-accelerated particles can participate in the Fermi-I process and be accelerated further to relativistic energies. We review these kinetic processes operating in ICM shocks.

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